Policy Brief

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Imported Inputs and Product Innovation

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The promotion of innovation in Low Income Countries (LICs) has recently appeared on the agenda of policy-makers and international development agencies. Many agree that innovation is crucial in these countries, because it is fundamental for growth in order to catch up with middle and high income economies. Innovation in LICs may manifest itself differently, not via high profile technological and radical breakthroughs, usually measured by R&D expenditures or patents, but by more incremental adoption and adaptation or new combinations of existing technologies. The drivers for innovation, as identified in many studies, include the level of human capital and financial development in the economy as well as the role of industrial policies and institutions. A relatively new insight concerning LICs stresses the role of trade, and in particular the role of imported intermediate inputs, in promoting innovations in LICs. However, there is as yet only limited understanding of the links between imported inputs and innovation and productivity.

In the framework of a DFID-funded research project entitled *'Enabling Innovation and Productivity Growth in Low Income Countries (EIP-LIC)',* a team of researchers from Tilburg University and the University of Louvain la Neuve investigated the effect of newly imported input varieties on product innovation in five developing countries. The research aims to fill this gap and addresses in particular the role of intermediate inputs for innovation in developing countries. The original DFID research project working paper is entitled *'Imported Input Varieties and Product Innovation: Evidence from Five Developing Countries'* (2017) by Marijke Bos and Gonzague Vannoorenberghe[1].

Research approach and findings

The research specifically examines how access to imported intermediate inputs affects firm-level product innovation in Ghana, Tanzania, Kenya, Uganda and Bangladesh. The research finds evidence that the number of newly imported intermediate inputs has a significant positive impact on product innovations, in particular, those that use new inputs and innovations for which a new input is an essential feature. The research suggests that this effect comes from access to better quality imports.

However, it is important to note that the relationship between imported inputs and innovation can be explained in two ways. Access to previously unavailable inputs may enable or inspire firms to use the inputs for a product innovation. Looking at it from the other side, innovation unrelated to international trade may increase the demand for imported inputs once manufacturing of the new or improved product has begun.

[1] The paper is accessible at the project's website (http://www.tilburguniversity.edu/dfid-innovation-and-growth)

Moreover, the research revealed the necessity to adopt a broad understanding of innovation, namely a new or significantly improved product, where new means new to the establishment and not necessarily new to the market or world. Further insights in the data revealed that a significant proportion of the innovations are incremental changes to existing products, and that most of the innovations are new only to the firm.

Policy implications

Innovation is considered central to growth in developing countries. A relevant policy aspect is that small incremental innovations that specifically address local challenges can bring important changes that improve welfare.

In the early stages of development, it is definitely not just innovation involving high technology. Understanding the drivers of innovation is of great importance to policy makers.

Apart from the more traditional western innovation policy approaches involving the establishment of Science and Technology (S&T) institutions and patent systems, this research indicates the use of import of intermediate inputs as an effective policy option. Policy makers in LICs should place greater emphasis on the importance of the effect of inputs on innovation and productivity growth.

Policies involving openness to trade could be an important contributor to input-essential innovations in developing countries. Policies to increase openness may therefore have a positive effect on the economy through increased innovation, although there seems to be a substitution effect from non-input using innovations to innovations that use new inputs. Further research on the origin effect of imported intermediate inputs is warranted to base thorough conclusions on this finding.

This research also shows that while innovation has gained a more important role in firm-level surveys as a basis for policy development, there is a need for more detailed questions on the role of imports in innovation to better understand the effects in LICs. As opposed to, for example, the role of finance, information and markets, the role of intermediate inputs has not received sufficient attention in policy research and analysis tools such as the WS Enterprise Survey (including the Innovation module), Community Innovation Survey (CIS) and similar firm-level innovation surveys. Policy makers in LICs should include the role of imports as an innovation driver and explore the manifestations of incremental innovation.

This policy brief is the product of a research project funded by the British Department for International Development (DFID) entitled 'Enabling Innovation and Productivity Growth in Low Income Countries' (EIP-LIC)'. The project is implemented by Tilburg University (The Netherlands) and explores SME-level innovation in Low Income Countries (LICs) and factors that contribute to or limit its diffusion. Data collection and research collaborations take place in 10 African and Asian countries (Bangladesh, Ethiopia, Ghana, India, Indonesia, Kenya, Tanzania, South Africa, Uganda and Vietnam). The policy implications of research are presented in a series of policy briefs, targeted at a broad audience of policy makers within governments, business and development agencies with a view to quantifying research outcomes and promoting evidence-based policy making.